CHAPTER 7.0 ALTERNATIVES DEVELOPMENT

Once this initial baseline data was collected, the study team forecasted traffic volumes for the 2005, 2030, and 2030 Beyond scenarios and evaluated general arterial and freeway operations for the study area network. The information collected during this process provided insight about where traffic patterns in the study area were most impacted by the socioeconomic conditions of the scenario. This information was then used for the alternatives development process as Phase II of the study to identify areas where particular attention needed to occur to provide the most effective and efficient transportation mobility improvements in the study area.

The primary purpose of Phase I of the East West Transportation Planning Study was to establish the current and future baseline conditions to be used during alternatives development (Phase II). Data used to compile the current conditions profile included regional roadway characteristics, regional population and employment, demographic characteristics, human-made and natural resources, regulated resources, and jurisdictional land use plans. Data used to compile the 2030 future condition included the 2030 socioeconomic data adopted by the Wasatch Front Regional Council (WFRC) for the study area in addition to the 2030 socioeconomic data for the growth projected from Kennecott Land. Data collected to project the 2030 Beyond scenario was generated from information collected from local jurisdictions, regional representatives, and Kennecott Land's projected growth.

7.1 BRAINSTORMING SESSION

A brainstorming session was held on November 19, 2007, to begin the alternatives development process. Participants in the session included the East West Transportation Planning Study core team, individuals with specific expertise in various modes of transportation (transit and roadways), and individuals with proficiency in identifying effective transportation alternatives. During the brainstorming session, the Brainstorming Team identified transportation concepts (roadway, transit, ITS) to reduce or alleviate future mobility problems in the study area and packaged them into three system alternatives for further analysis and consideration.

7.1.1 Basis for Brainstorming

7.1.1.1 Design Criteria for Concepts

The study area is generally bound by SR 201 on the north, I-15 on the east, Salt Lake County on the south, and SR 111 on the west. To better organize and collect data during alternatives development, the study area was separated into three subareas. The subareas were defined based on jurisdictional boundaries as follows:

- North—includes Kennecott North, South Salt Lake, West Valley, Taylorsville, and Murray
- Central—includes Kennecott Central, West Jordan, Midvale, Sandy City, and South Jordan
- South—Kennecott South, Herriman, Riverton, Draper City, and Bluffdale

Table 7-1 through Table 7-4 and Figure 7-1 and Figure 7-2 show the design criteria used in the first brainstorming exercise to develop concepts for the study area. The design criteria were based on standard practice design guidelines in Utah and Colorado and from the American Association of State Highway and Transportation Officials (AASHTO) Policy on the Geometric Design of Highways and Streets. The design criteria included urban sections, rural sections, and interchange design footprints.

Table 7-1. Urban Sections

Criteria	Arterial		Freeway		Arterial Couplet		Existing Arterial	
	4-Lane	6-Lane	4-Lane	6-Lane	2-Lane	3-Lane	Freeway Viaduct	Cantilever Freeway
Lanes	10-12'		12'		11-12'		12'	
Outside Shoulders (incl. bike lane)	10'		10-12'		10'		10-12'	
Inside Shoulders	n/a		4-10'	10-12'	4-10'		4-10'	10-12'
Median (incl. inside shoulder)	12-18'		10-26'	22-26'	-		10-26'	2-26'
Posted Speed	30-60 mph		50-70 mph		30-60 mph		50-70 mph	
Section Width	87-101'*	111-125'*	78-94'	118-122'	41-49'*	52-61'*	78-94'	118-122'
Right-of-Way	106-120'	130-144'	120-150'	150-200'	60'	80'	115-130'	135'
Access	Varies depending on location of HOV lanes		interchanges < 2 mile spacing		signalized < 1/2 mile spacing		interchanges < 2 mile spacing	
LOS D Threshold ADT (average daily traffic)	32,700 vpd	49,200 vpd	67,200 vpd	105,800 vpd	39,200 vpd	59,000 vpd	67,200 vpd	105,800 vpd
LOS E Threshold ADT	34,500 vpd	51,800 vpd	76,500 vpd	120,200 vpd	41,400 vpd	62,200 vpd	76,500 vpd	120,200 vpd

* includes outside curb and gutter @ 2.5 feet

Source: AASHTO Policy on the Geometric Design of Highways and Streets

Table 7-2. Rural Sections

Criteria	Expressway		Freeway	
	4-Lane	6-Lane	4-Lane	6-Lane
Lanes	12 feet		12 feet	
Outside Shoulders (incl. bike lane)	10-12 feet		10-12 feet	
Inside Shoulders	4-10 feet		4-10 feet	10-12 feet
Median (incl. inside shoulder)	30-50 feet		50-100 feet	
Posted Speed	30-60 mph		50-75 mph	
Section Width	98-118 feet	122-142 feet	118-168 feet	142-192 feet
Right-of-Way	150-200 feet	200-250 feet	250-300 feet	
Access	signalized > 1/2 mile spacing		interchanges > 2 mile spacing	
LOS D Threshold ADT	35,700 vpd	53,500 vpd	67,100 vpd	103,600 vpd
LOS E Threshold ADT	-**	-**	74,600 vpd	115,300 vpd

**LOS E is not applicable in this instance, volumes greater than LOS D become LOS F because intersection capacities have been reached.

Source: Wilson & Company, November 2007
AASHTO Policy on the Geometric Design of Highways and Streets

Table 7-3. Interchange Footprint

Type	Single-Point Urban	Diamond	Tight Urban Diamond	Fully Directional	Partial Cloverleaf
Overpass and Ramp (at widest point)	250-350 feet	600-800 feet	250-350 feet	Varies	1000-1200 feet

Source: Wilson & Company, November 2007

Table 7-4. Transit Footprint

Type	Center-Running	Side-Running
Light Rail	28 feet	33 feet
BRT	24 feet	24 feet

Source: Utah Transit Authority, December 2007

Figure 7-1. Urban Cross Sections

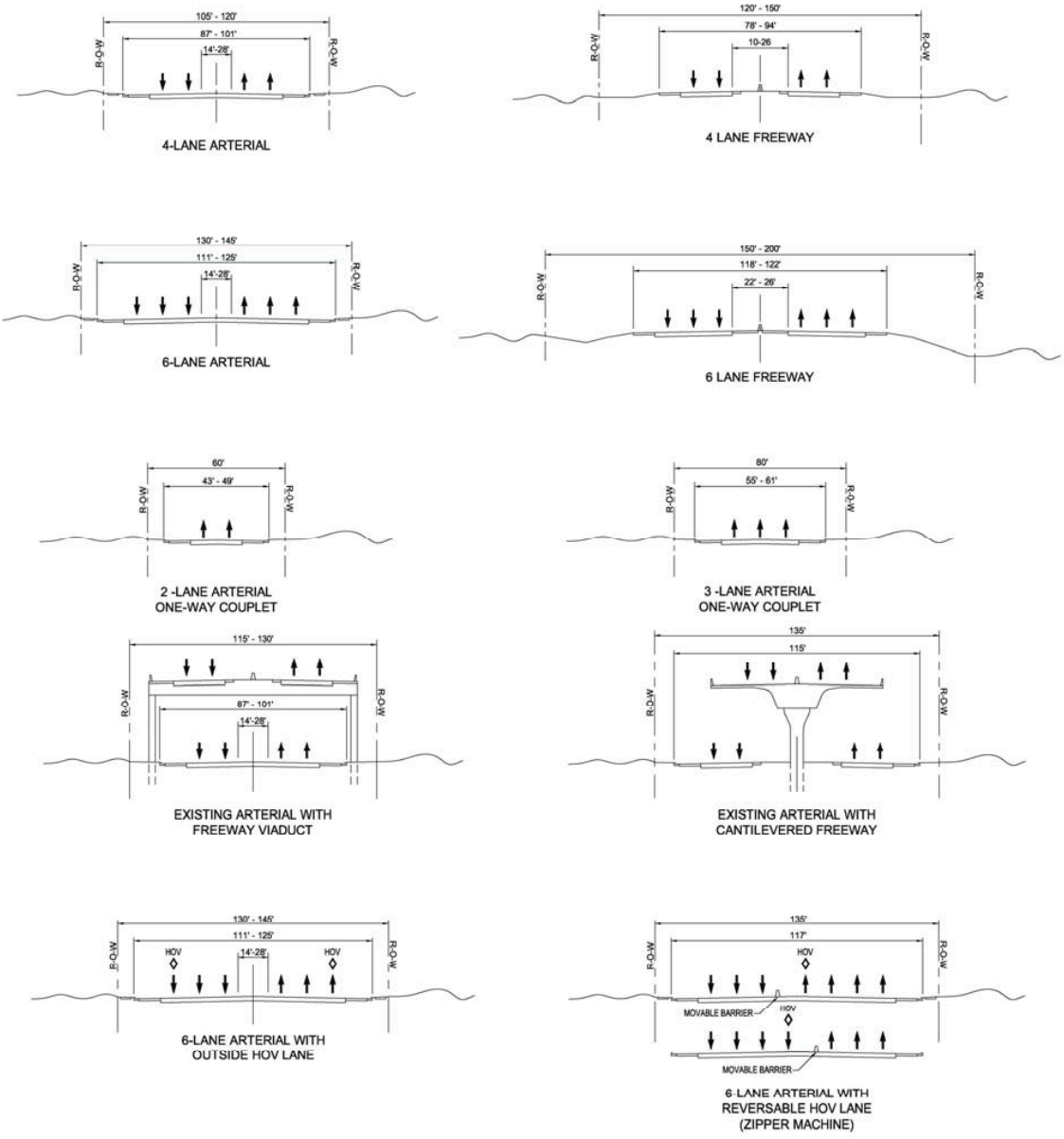
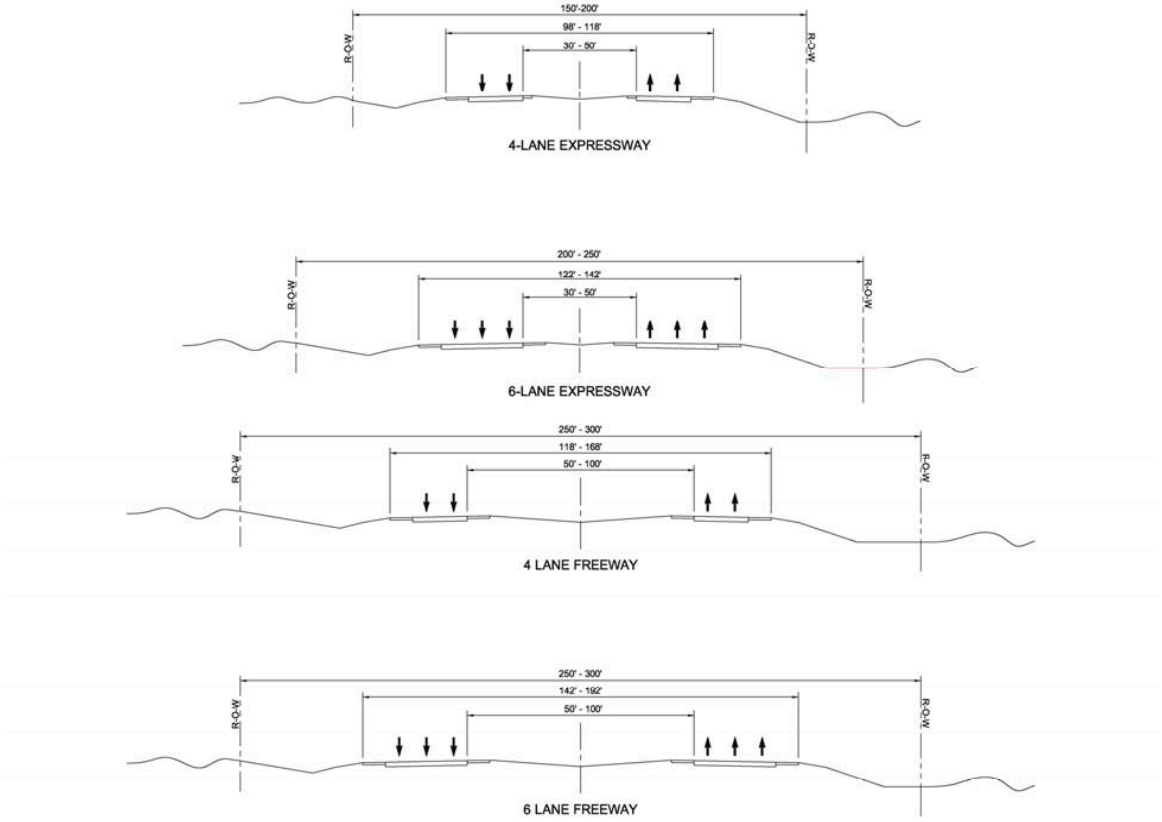


Figure 7-2. Rural Cross Sections



7.1.1.2 Stakeholder Working Group Recommendations and Priorities

Recommendations and priorities identified by the Stakeholder Working Group (SWG) at its initial meeting were also considered in the brainstorming session. Table 7-5 through Table 7-7 contain the recommendations and priorities for each of the subareas—North, Central, and South.

Table 7-5. North Subarea: Stakeholder Working Group Recommendations and Priorities for Alternatives Development

Recommendations	Priorities
1. Limited access highway from SR 111 at SR 201 to I-80. 2. Widen SR 111 to six lanes from SR 201 to 12600 South and bypass Magna west of the rail line. 3. Improve 6200 South to provide adequate connection to Kennecott's proposed ski resort. 4. Limited access highway on 6200 South. 5. Create a western highway loop from 6200 South to I-215 and from SR 201 to the Mountain View Corridor. 6. Limited Access highway on 5400 South. 7. Make Bangerter Highway a limited access highway throughout the study area. 8. Extend Magna Main Street through to Little Valley. 9. Improve east-west arterials between I-215 and Bangerter Highway. 10. Improve transit from 3500 South to 10200 South. 11. Improve transit (Light rail or bus rapid transit) from the intermodal hub at 3500 South and 2700 West to 4700 South and then west to 5600 West to Mountain View Corridor transit line with one spur on existing rail into Magna and another to a Kennecott transit rail line. 12. Create a "transit boulevard" west of SR 111 that connects to the airport line and 3500 South. 13. Develop a West Valley transit city center.	1. Maintain 3500 South as a transit corridor. 2. Include the 5600 West transit line in the Mountain View Corridor Plan. 3. Improve the I-215 and Redwood Road interchange 4. Widen SR 111 and bypass at 3500 South 5. Limited access highway on 6200 South 6. 4700 South transit line (3500 South to 2700 West to 4700 South and then two spurs west). 7. SR 201 and SR 111 interchange

Table 7-6. Central Subarea: Stakeholder Working Group Recommendations and Priorities for Alternatives Development

Recommendations	Priorities
1. Improve east-west mobility at major north-south barriers (Bangerter Highway and Redwood Road).	1. Improve 9000 South.
2. Improve 10400 South (widen to five lanes).	2. Improve 11400 South (widen to five lanes).
3. Improve 11400 South (widen to five lanes).	3. Improve I-15 interchanges (primarily 9000 South) to better accommodate high traffic volumes.
4. Improve SR 111 (widen to five lanes).	4. Improve 10400 South (widen to five lanes).
5. Improve I-15 interchanges to accommodate east-west traffic volumes particularly at 9000 South.	5. Improve Bangerter Highway intersection at 10400 South.
6. Create a more direct connection from 7800 South to 720 South near the I-15 interchange.	6. Improve Bangerter Highway intersections at 11400 South.
7. Provide a connection to I-15 at 5400 South.	7. New Bingham Highway connectivity to Copperton.
8. Consider an additional interchange for Mountain View Corridor between 900 South and 10400 South possibly at the Old Bingham Highway.	8. Would like to see major east-west improvements as well as existing arterial enhancements.
9. Provide another freeway access between 9000 South and 10600 South to help relieve the congestion at the existing interchanges.	9. Create a more direct connection from 7800 South to 7200 South near the I-15 interchange
10. Improve intersections along Bangerter Highway.	
11. Consider the Old Bingham Highway corridor for potential improvements.	
12. Preserve 5600 West as a transit corridor.	
13. Intermodal connectivity in the Old Bingham Highway and Mountain View Corridor area.	

Table 7-7. South Subarea: Stakeholder Working Group Recommendations and Priorities for Alternatives Development

Recommendations	Priorities
1. Build a system-to-system interchange between the Mountain View Corridor and Bangerter Highway (maintain access along 13400 South).	1. Consider a system-to-system connector between the Mountain View Corridor and Bangerter Highway while maintaining 13400 South.
2. Assume the Porter Rockwell arterial will be developed and that it could potentially serve as a limited access highway.	2. Maintain access to property located within the Mountain View Corridor and Bangerter highway system-to-system area.
3. Roadway improvements on 12600 South from Jordan River Bottoms to I-15	3. Consider 11800 South from the Mountain View Corridor to Kennecott as a major arterial.
4. Widen 14600 South from I-15 to the Mountain View Corridor	4. Improve 14600 South.
5. Limited access highway between I-15 and the Mountain View Corridor near the Salt Lake/Utah County line.	5. Create interchange access to Bangerter Highway at 600 West.
6. Make Bangerter Highway a limited access highway through out the study area.	
7. Extend the Mid-Jordan light rail line to Mountain View Corridor and to 13400 South.	
8. Extend transit service from the Mountain View Corridor and 13400 South to the Commuter rail stations in Draper via Bangerter Highway or South of Bangerter Highway.	
9. Provide transit to connect to Herriman mixed-use development to commuter rail station.	
10. Provide transit to connect to Bluffdale mixed-use development to commuter rail station.	
11. Connect commuter rail in Draper to future development centers west of I-15.	
12. Extend light rail on 11400 South to Kennecott land and to the airport.	

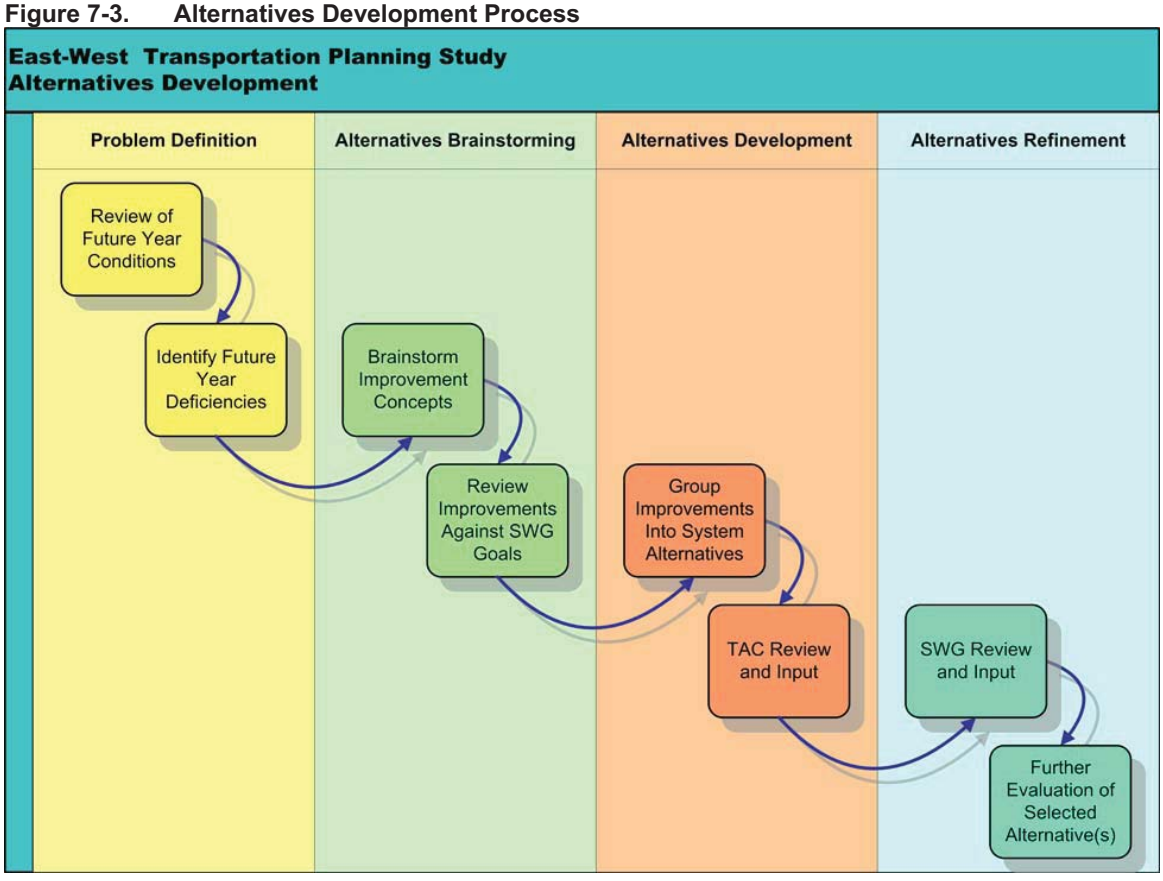
7.1.1.3 Phase I Deficiencies

The future year deficiencies identified in Phase I of the study were presented for consideration in the brainstorming process.

7.2 PROCESS

The alternatives development process is presented in Figure 7-3. The brainstorming started with problem definition using the current study area conditions and the future year condition and deficiencies identified in Phase I. Then, participants brainstormed improvement concepts for each subarea and reviewed them against the SWG goals and recommendations from Phase I. Next, participants grouped the improvement concepts into useable System Alternatives that were presented to the Technical Advisory Committee for review and input. Last, the alternatives were presented to the SWG for review and input. The SWG defined the final alternatives to be advanced for further analysis.

Figure 7-3. Alternatives Development Process



7.2.1 Problem Definition

After a review of the technical information from Phase I, the participants identified general areas where mobility was constrained.

7.2.2 Alternatives Brainstorming

The participants generated numerous ideas to resolve capacity and network deficiencies. Participants considered mobility solutions that included both transit and personal vehicles. The ideas that were generated were above and beyond improvements already identified in the *Wasatch Front Regional Transportation Plan: 2007-2030 (2030 RTP)*.

Improvement ideas were sketched onto aerial plots of each subarea. Each idea was described and refined to generally define the extent of the improvement (type of transit, type of facility, number of lanes, endpoints, etc.). Improvement ideas also were recorded in a descriptive list projected onto a screen for the participants to track.

After the initial brainstorming session, the improvement ideas were reviewed against the SWG recommendations and priorities that were received during Phase I. Ideas consistent with the SWG were identified.

The results of the brainstorming for each subarea are presented below in Table 7-8 through Table 7-10 for North, Central, and South subunits, respectively. Brainstorming ideas that were common to all subareas are shown in Table 7-11.

Table 7-8. North Subarea Brainstorming Ideas

ID#	Facility	From	To	Improvement	Type	Stakeholder Related
N1	SR 201	I-15	Mountain View Corridor	widen to 10 lanes	freeway	
		SR 111	I-80	widen to 6 lanes	freeway	
N2	I-215	SR 201	Redwood Road	upgrade to provide frontage roads/Texas u-turns	arterial	
N3a	3100/3500 South	SR 111	Redwood Road	convert to one-way couplet	arterial	North subunit recommendation #9
		Mountain View Corridor (2700/3500 South)		add split diamond interchange	arterial	North subunit recommendation #9
N3b	3100/3500 South	SR 111	Redwood Road	convert to serve peak directional flow with unbalanced lanes	arterial	North subunit recommendation #9
N3c	3400/3500 South	Redwood Road	Bangerter Highway	convert to one-way couplet	arterial	North subunit recommendation #9
N4	3500 South	Sunrise/Tooele	north-south TRAX line	BRT extension	transit	North subunit recommendation #10, 11
N5	4100 South	I-215	SR 111	widen to 6 lanes	arterial	North subunit recommendation #9
N6	5400 South	north-south TRAX line	Kennecott north-south transit line	add BRT route	transit	North subunit recommendation #10, 11
N7a	5400/6200 South	Redwood Road	SR 111	convert one of these roads to an expressway (limited or no development access, right-ins/outs, possible signals at cross streets)	express way	North subunit recommendation #3, 4, 6
N7b	5400/6200 South	Redwood Road	SR 111	add a viaduct freeway on top of one of these roads	freeway	North subunit recommendation s #3, 4, 6
N8	I-215	5400 South (movements to and from the north)		add a half-diamond interchange	freeway	
N9	5400 South/4800 West			realign intersection	arterial	North subunit recommendation #9

Table 7-8. North Subarea Brainstorming Ideas

ID#	Facility	From	To	Improvement	Type	Stakeholder Related
N/C 10	5600 West	SR 201	Herriman	add north-south transit corridor	transit	North subunit recommendation #10
N11	3500 South	intermodal hub (3500 South/2700 West)	4700 South	improve transit (light rail or BRT) with one spur on existing rail to Magna and another to a Kennecott transit rail line	transit	North subunit recommendation #11
		5600 West	Mountain View Corridor transit line		transit	North subunit recommendation #10
N12	west of SR 111	airport line	3500 or 4100 South	create a "transit boulevard"	arterial	North subunit recommendation #12
N13	4700 South	I-15	I-215	convert to a freeway	arterial	North subunit recommendation #9
		I-215	Mountain View Corridor	convert to an expressway	arterial	North subunit recommendation #9

Table 7-9. Central Subarea Brainstorming Ideas

ID#	Facility	From	To	Improvement	Type	Stakeholder Related
C1a	9000 South	I-15	SR 111	convert to a freeway	freeway	
C1b	9000 South/Old Bingham Highway	I-15	Old Bingham Highway	convert to a freeway	freeway	Central subunit recommendation #11
		Old Bingham Highway	SR 111	continue freeway on Old Bingham	freeway	Central subunit recommendation #11
C1c	9000 South	I-15	SR 111	add a viaduct on top of arterial	express way	
C2a	7000 South	I-15	airport	widen to 6 lanes	arterial	
		airport	SR 111	extend arterial west with tunnel under airport runways	arterial	Central subunit recommendation #1
C2b	7000 South	I-15	airport	widen to 6 lanes	arterial	
C3a	Mountain View Corridor	Old Bingham Highway/10200 South		provide split diamond	freeway	Central subunit recommendation #1, 8, 9
C3b	Mountain View Corridor	New Bingham Highway/9000 South		provide split diamond	arterial	Central subunit recommendation #1, 8, 9
C4	Mid-Jordan Light Rail line	terminus (11000 South and 5200 West)	proposed north/south lines on Kennecott property	extend Mid-Jordan line	Transit	
C5	9800 South	State Street	4000 West	widen to 4 lanes	arterial	
C6	10200/10600 South	Mountain View Corridor	north-south TRAX line	add BRT line	transit	
C7	10200/10400 South	Redwood Road	6400 West	extend and widen facility to 6 lanes	arterial	Central subunit recommendation #2
C8	11400 South	State Street	Redwood Road	widen to 6 lanes	arterial	Central subunit recommendation #3
C9	7200/7800 South	7800 South	7200 South near I-15	create a new direct connection	arterial	Central subunit recommendation #6
C10	7000/7800 South	I-15	Bangerter Highway	convert to serve peak directional flow with unbalanced lanes	arterial	

Table 7-10. South Subarea Brainstorming Ideas

ID#	Facility	From	To	Improvement	Type	Stakeholder Related
S1	Mid-Jordan Light Rail line	terminus (11000 South and 5200 West)	Herriman at 13400 South	extend Mid-Jordan line	transit	South subunit recommendation #7, 9
S2a	Mid-Jordan Light Rail line	Herriman at 13400 South	commuter rail east of 1300 East and north-south TRAX line	extend Mid-Jordan line along Bangerter Hwy	transit	South subunit recommendation #7, 9
S2b	BRT line	Herriman at 13400 South	commuter rail east of 1300 East and north-south TRAX line	extend BRT line along Bangerter Hwy	transit	South subunit recommendation #8, 9, 10, 11
S3a	13400 South	Mountain View Corridor	Bangerter Highway	provide local access in addition to RTP upgrade to freeway	freeway	South subunit recommendation #1
S4	13400 South	Redwood Road	4000 West	widen to 4 lanes	arterial	
S5	SR 111	11800 South		realignment with expressway/freeway section	freeway	
S6	Redwood Road	Bangerter Highway	Porter Rockwell Blvd	widen to 6 lanes	arterial	
S7	BRT line	Herriman at 13400 South	commuter rail east of 1300 East and north-south TRAX line	add BRT line along 12600 South	transit	South subunit recommendation #11

Table 7-11. Brainstorming Ideas Common to All Subareas

ID#	Facility	From	To	Improvement	Type	Stakeholder Related
A1a	Bangerter Highway	13400 South	SR 201	convert to a freeway	freeway	North subunit recommendation #7; South subunit recommendation #6
A1b	Bangerter Highway	13400 South	SR 201	convert to a freeway throughout study area with frontage roads/Texas u-turns	freeway	North subunit recommendation #7; South subunit recommendation #6
A1c	Bangerter Highway	13400 South	SR 201	add high capacity at-grade intersections at major cross streets	freeway	North subunit recommendation #7; Central subunit recommendation #10; South subunit recommendation #6
A2a	SR 111	13400 South	SR 201	convert to a 6-lane expressway throughout study area	express way	North subunit recommendation #2; Central subunit recommendation #4
A2b	SR 111 / Magna Bypass	SR 201	3500 South where facility would connect	convert Magna Bypass to a 6-lane expressway	express way	North subunit recommendation #2; Central subunit recommendation #4
		south to 13400 South		convert SR 111 to a 6-lane expressway	express way	
A2c	SR 111	13400 South	SR 201	widen to a 6-lane arterial throughout study area	arterial	North subunit recommendation #2; Central subunit recommendation #4
A3	Redwood Road	13400 South	SR 201	add BRT throughout study area	transit	

7.2.3 Systems Alternatives Development

The participants reviewed each of the brainstorming ideas within each subarea and then grouped the improvements into system-level packages. To guide the definition of the three System Alternatives, the improvement ideas were reviewed to identify:

1. Mutually exclusive ideas that could be separated and placed into individual alternatives.
2. Improvement ideas that complemented each other and that could be grouped as a specific improvement option within an alternative.
3. Ideas that were independent of other options that could be used for any alternative.

Three System Alternatives were developed and presented to the Technical Advisory Committee for further review and refinement. They are described in Table 7-12, Table 7-13, and Table 7-14.

Table 7-12. Alternative 1 (as developed November 19, 2007)

#	Facility	From	To	Improvement	Facility Type	Stakeholder Related
N1	SR 201	I-15	Mountain View Corridor	widen to 10 lanes	freeway	
		SR 111	I-80	widen to 6 lanes	freeway	
N2	I-215	SR 201	Redwood Road	upgrade to provide frontage roads/Texas u-turns	arterial	
N3c	3400/3500 South	Redwood Road	Bangerter Highway	convert to one-way couplet	arterial	North subunit recommendation #9
N5	4100 South	I-215	SR 111	widen to 6 lanes	arterial	North subunit recommendation #9
N6	5400 South	north-south TRAX line	Kennecott north-south transit line	add BRT route	transit	North subunit recommendation #10, 11
N7a	5400/6200 South	Redwood Road	SR 111	convert one of these roads to an expressway (limited or no development access, right-ins/outs, possible signals at cross streets)	express way	North subunit recommendation #3, 4, 6
N8	I-215	5400 South (movements to and from the north)		add a half-diamond interchange	freeway	
N9	5400 South/4800 West			realign intersection	arterial	North subunit recommendation #9

Table 7-12. Alternative 1 (as developed November 19, 2007)

#	Facility	From	To	Improvement	Facility Type	Stakeholder Related
N/C 10	5600 West	SR 201	Herriman	add north-south transit corridor	transit	North subunit recommendation #10
N12	west of SR 111	airport line	3500 or 4100 South	create a "transit boulevard"	arterial	north subunit recommendation #12
N13	4700 South	I-15	I-215	convert to a freeway	arterial	North subunit recommendation #9
		I-215	Mountain View Corridor	convert to an expressway	arterial	North subunit recommendation #9
C1a	9000 South	I-15	SR 111	convert to a freeway	freeway	
C2a	7000 South	I-15	airport	widen to 6 lanes	arterial	
		airport	SR 111	extend arterial west with tunnel under airport runways	arterial	Central subunit recommendation #9
C3b	Mountain View Corridor	New Bingham Highway/9000 South		provide split diamond	arterial	Central subunit recommendation #1, 8, 9
C4	Mid-Jordan Light Rail line	terminus (11000 South and 5200 West)	proposed north/south lines on Kennecott property	extend Mid-Jordan line	transit	
C5	9800 South	State Street	4000 West	widen to 4 lanes	arterial	
C6	10200/10600 South	Mountain View Corridor	north-south TRAX line	add BRT line	transit	
C7	10200/10400 South	Redwood Road	6400 West	extend and widen facility to 6 lanes	arterial	Central subunit recommendation #2
C8	11400 South	State Street	Redwood Road	widen to 6 lanes	arterial	Central subunit recommendation #3
S1	Mid-Jordan Light Rail line	terminus (11000 South and 5200 West)	Herriman at 13400 South	extend Mid-Jordan line	transit	South subunit recommendation #7, 9
S2a	Mid-Jordan Light Rail line	Herriman at 13400 South	commuter rail east of 1300 East and north-south TRAX line	extend Mid-Jordan line along Bangerter Hwy	transit	South subunit recommendation #7, 9
S4	13400 South	Redwood Road	4000 West	widen to 4 lanes	arterial	

Table 7-12. Alternative 1 (as developed November 19, 2007)

#	Facility	From	To	Improvement	Facility Type	Stakeholder Related
S5	SR 111	11800 South		realignment with expressway/freeway section	freeway	
S6	Redwood Road	Bangerter Highway	Porter Rockwell Blvd	widen to 6 lanes	arterial	
A1b	Bangerter Highway	13400 South	SR 201	convert to a freeway throughout study area with frontage roads/Texas u-turns	freeway	North subunit recommendation #7; South subunit recommendation #6
A2b	SR 111 Magna Bypass	SR 201	3500 South where facility would connect	convert Magna Bypass to a 6-lane expressway	express way	North subunit recommendation #2; Central subunit recommendation #4
A2b	SR 111 / Magna Bypass	SR 201	3500 South where facility would comment	convert SR 111 to a 6-lane express way	express way	

Table 7-13. Alternative 2 (as developed November 19, 2007)

#	Facility	From	To	Improvement	Facility Type	Stakeholder Related
N1	SR 201	I-15	Mountain View Corridor	widen to 10 lanes	freeway	
		SR 111	I-80	widen to 6 lanes	freeway	
N3a	3100/3500 South	SR 111	Redwood Road	convert to one-way couplet	arterial	North subunit recommendation #9
		Mountain View Corridor (2700/3500 South)		add split diamond interchange	arterial	North subunit recommendation #9
N4	3500 South	Sunrise/Tooele	north-south TRAX line	BRT extension	transit	North subunit recommendation #10, 11
N5	4100 South	I-215	SR 111	widen to 6 lanes	arterial	North subunit recommendation #9
N8	I-215	5400 South (movements to and from the north)		add a half-diamond interchange	freeway	

Table 7-13. Alternative 2 (as developed November 19, 2007)

#	Facility	From	To	Improvement	Facility Type	Stakeholder Related
N9	5400 South/4800 West			realign intersection	arterial	North subunit recommendation #9
N/C 10	5600 West	SR 201	Herriman	add north-south transit corridor	transit	North subunit recommendation #10
N11	3500 South	intermodal hub (3500 South/2700 West)	4700 South	improve transit (light rail or BRT) with one spur on existing rail to Magna and another to a Kennecott transit rail line	transit	North subunit recommendation #11
		5600 West	Mountain View Corridor transit line		transit	North subunit recommendation #10
N12	west of SR 111	airport line	3500 or 4100 South	create a "transit boulevard"	arterial	North subunit recommendation #12
N13	4700 South	I-15	I-215	convert to a freeway	arterial	North subunit recommendation #9
		I-215	Mountain View Corridor	convert to an expressway	arterial	North subunit recommendation #9
C1b	9000 South/Old Bingham Highway	I-15	Old Bingham Highway	convert to a freeway	freeway	Central subunit recommendation #11
		Old Bingham Highway	SR 111	continue freeway on Old Bingham	freeway	Central subunit recommendation #11
C2b	7000 South	I-15	airport	widen to 6 lanes	arterial	
C3a	Mountain View Corridor	Old Bingham Highway/10200 South		provide split diamond	freeway	Central subunit recommendation #1, 8, 9
C4	Mid-Jordan Light Rail line	terminus (11000 South and 5200 West)	proposed north/south lines on Kennecott property	extend Mid-Jordan line	transit	
C5	9800 South	State Street	4000 West	widen to 4 lanes	arterial	
C6	10200/10600 South	Mountain View Corridor	north-south TRAX line	add BRT line	transit	
C7	10200/10400 South	Redwood Road	6400 West	extend and widen facility to 6 lanes	arterial	Central subunit recommendation

Table 7-13. Alternative 2 (as developed November 19, 2007)

#	Facility	From	To	Improvement	Facility Type	Stakeholder Related
						#2
C8	11400 South	State Street	Redwood Road	widen to 6 lanes	arterial	Central subunit recommendation #3
S1	Mid-Jordan Light Rail line	terminus (11000 South and 5200 West)	Herriman at 13400 South	extend Mid-Jordan line	transit	South subunit recommendation #7, 9
S2a	Mid-Jordan Light Rail line	Herriman at 13400 South	commuter rail east of 1300 East and north-south TRAX line	extend Mid-Jordan line along Bangerter Hwy	transit	South subunit recommendation #7, 9
S3a	13400 South	Mountain View Corridor	Bangerter Highway	provide local access in addition to RTP ugrade to freeway	freeway	South subunit recommendation #1
S4	13400 South	Redwood Road	4000 West	widen to 4 lanes	arterial	
S5	SR 111	11800 South		realignment with expressway/freeway section	freeway	
S6	Redwood Road	Bangerter Highway	Porter Rockwell Blvd	widen to 6 lanes	arterial	
S7	BRT line	Herriman at 13400 South	commuter rail east of 1300 East and north-south TRAX line	add BRT line along 12600 South	transit	South subunit recommendation #11
A1a	Bangerter Highway	13400 South	SR 201	convert to a freeway	freeway	North subunit recommendation #7; South subunit recommendation #6
A2c	SR 111	13400 South	SR 201	widen to a 6-lane arterial throughout study area	arterial	North subunit recommendation #2; Central subunit recommendation #4
A3	Redwood Road	13400 South	SR 201	add BRT throughout study area	transit	South subunit recommendation #10

Table 7-14. Alternative 3 (as developed November 19, 2007)

#	Facility	From	To	Improvement	Facility Type	Stakeholder Related
N1	SR 201	I-15	Mountain View Corridor	widen to 10 lanes	freeway	
		SR 111	I-80	widen to 6 lanes	freeway	
N3b	3100/3500 South	SR 111	Redwood Road	convert to serve peak directional flow with unbalanced lanes	arterial	North subunit recommendation #9
N4	3500 South	Sunrise/Tooele	north-south TRAX line	BRT extension	transit	North subunit recommendation #10, 11
N5	4100 South	I-215	SR 111	widen to 6 lanes	arterial	North subunit recommendation #9
N6	5400 South	north-south TRAX line	Kennecott north-south transit line	add BRT route	transit	North subunit recommendation #10, 11
N7b	5400/6200 South	Redwood Road	SR 111	add a viaduct freeway on top of one of these roads	freeway	North subunit recommendation #3, 4, 6
N8	I-215	5400 South (movements to and from the north)		add a half-diamond interchange	freeway	
N9	5400 South/4800 West			realign intersection	arterial	North subunit recommendation #9
N/C 10	5600 West	SR 201	Herriman	add north-south transit corridor	transit	North subunit recommendation #10
N12	west of SR 111	airport line	3500 or 4100 South	create a "transit boulevard"	arterial	North subunit recommendation #12
N13	4700 South	I-15	I-215	convert to a freeway	arterial	North subunit recommendation #9
		I-215	Mountain View Corridor	convert to an expressway	arterial	North subunit recommendation #9
C1c	9000 South	I-15	SR 111	add a viaduct on top of arterial	express way	
C3b	Mountain View Corridor	New Bingham Highway/9000 South		provide split diamond	arterial	Central subunit recommendation #1, 8, 9

Table 7-14. Alternative 3 (as developed November 19, 2007)

#	Facility	From	To	Improvement	Facility Type	Stakeholder Related
C4	Mid-Jordan Light Rail line	terminu (11000 South and 5200 West)	proposed north/south lines on Kennecott property	extend Mid-Jordan line	transit	
C5	9800 South	State Street	4000 West	widen to 4 lanes	arterial	
C6	10200/10600 South	Mountain View Corridor	north-south TRAX line	add BRT line	transit	
C7	10200/10400 South	Redwood Road	6400 West	extend and widen facility to 6 lanes	arterial	Central subunit recommendation #2
C8	11400 South	State Street	Redwood Road	widen to 6 lanes	arterial	Central subunit recommendation #3
C9	7200/7800 South	7800 South	7200 South near I-15	create a new direct connection	arterial	Central subunit recommendation #6
C10	7000/7800 South	I-15	Bangerter Highway	convert to serve peak directional flow with unbalanced lanes	arterial	
S1	Mid-Jordan Light Rail line	terminus (11000 South and 5200 West)	Herriman at 13400 South	extend Mid-Jordan line	transit	South subunit recommendation #7, 9
S2b	BRT line	Herriman at 13400 South	commuter rail east of 1300 East and north-south TRAX line	extend BRT line along Bangerter Hwy	transit	South subunit recommendation #8, 9, 10, 11
S4	13400 South	Redwood Road	4000 West	widen to 4 lanes	arterial	
S5	SR 111	11800 South		realignment with expressway/freeway section	freeway	
S6	Redwood Road	Bangerter Highway	Porter Rockwell Blvd	widen to 6 lanes	arterial	
A1c	Bangerter Highway	13400 South	SR 201	add high capacity at-grade intersections at major cross streets	freeway	North subunit recommendation #7; Central subunit recommendation #10; South subunit recommendation #6

Table 7-14. Alternative 3 (as developed November 19, 2007)

#	Facility	From	To	Improvement	Facility Type	Stakeholder Related
A2a	SR 111	13400 South	SR 201	convert to a 6-lane expressway throughout study area	express way	North subunit recommendation #2; Central subunit recommendation #4
A3	Redwood Road	13400 South	SR 201	add BRT throughout study area	transit	South subunit recommendation #10

7.2.4 Alternatives Refinement

Between the brainstorming session and the final presentation at the SWG meeting in January 2008, the three System Alternatives were refined further and are slightly different from the alternatives described in the tables above. Figure 7-4, Figure 7-5, and Figure 7-6 illustrate the three System Alternatives that were presented to the SWG and the Focus Group for further refinement.

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Figure 7-4. Alternative 1

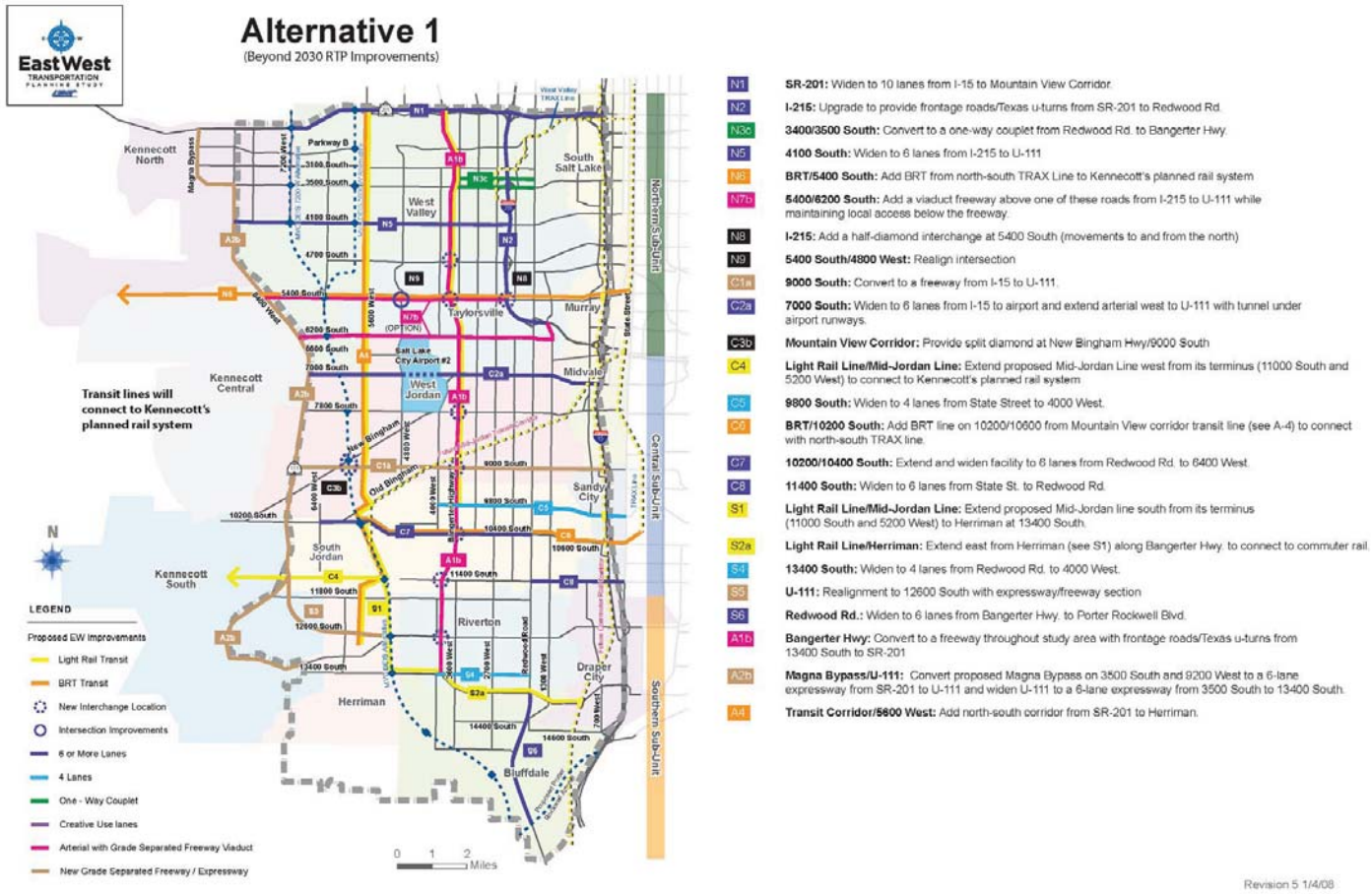

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Figure 7-5. Alternative 2

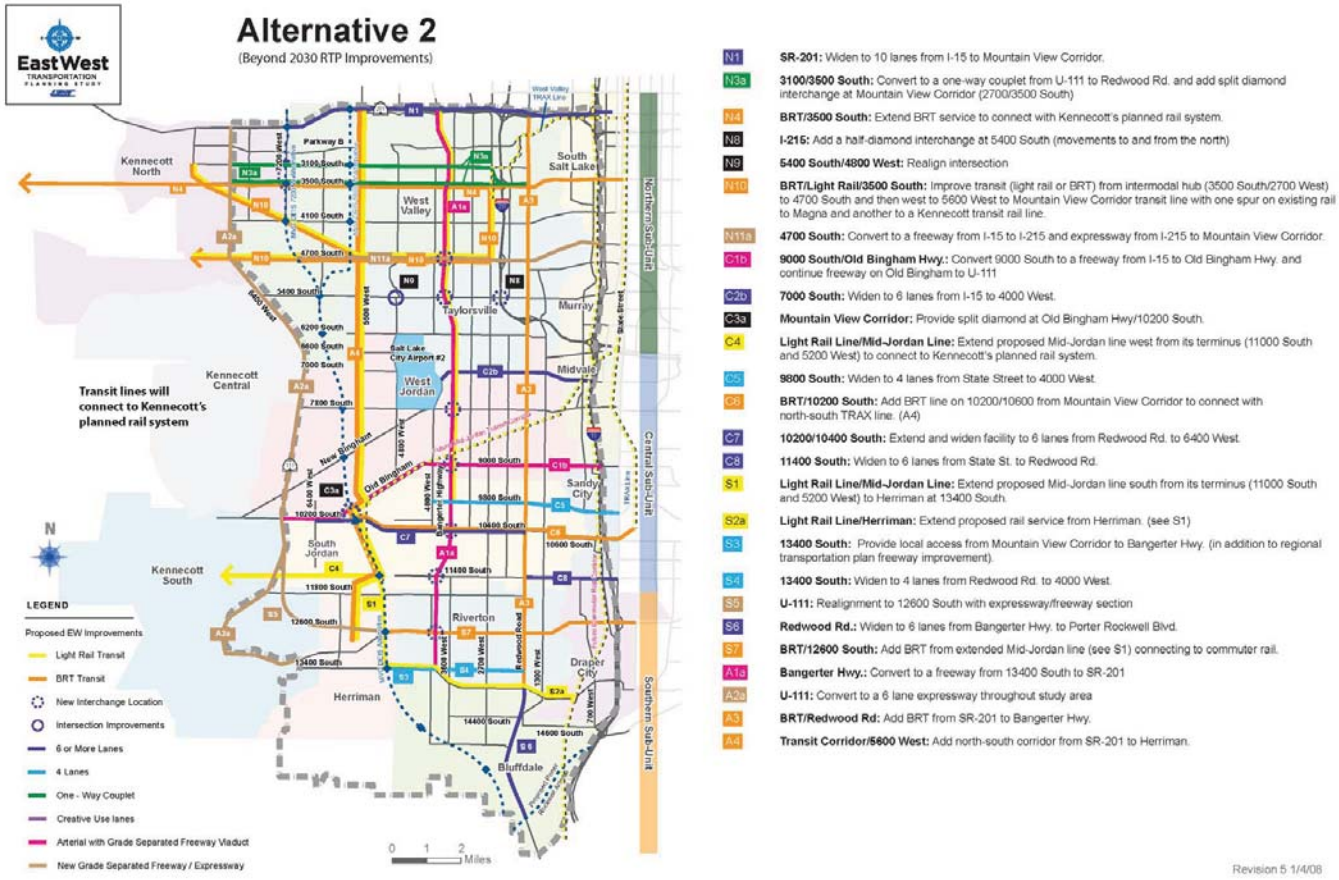

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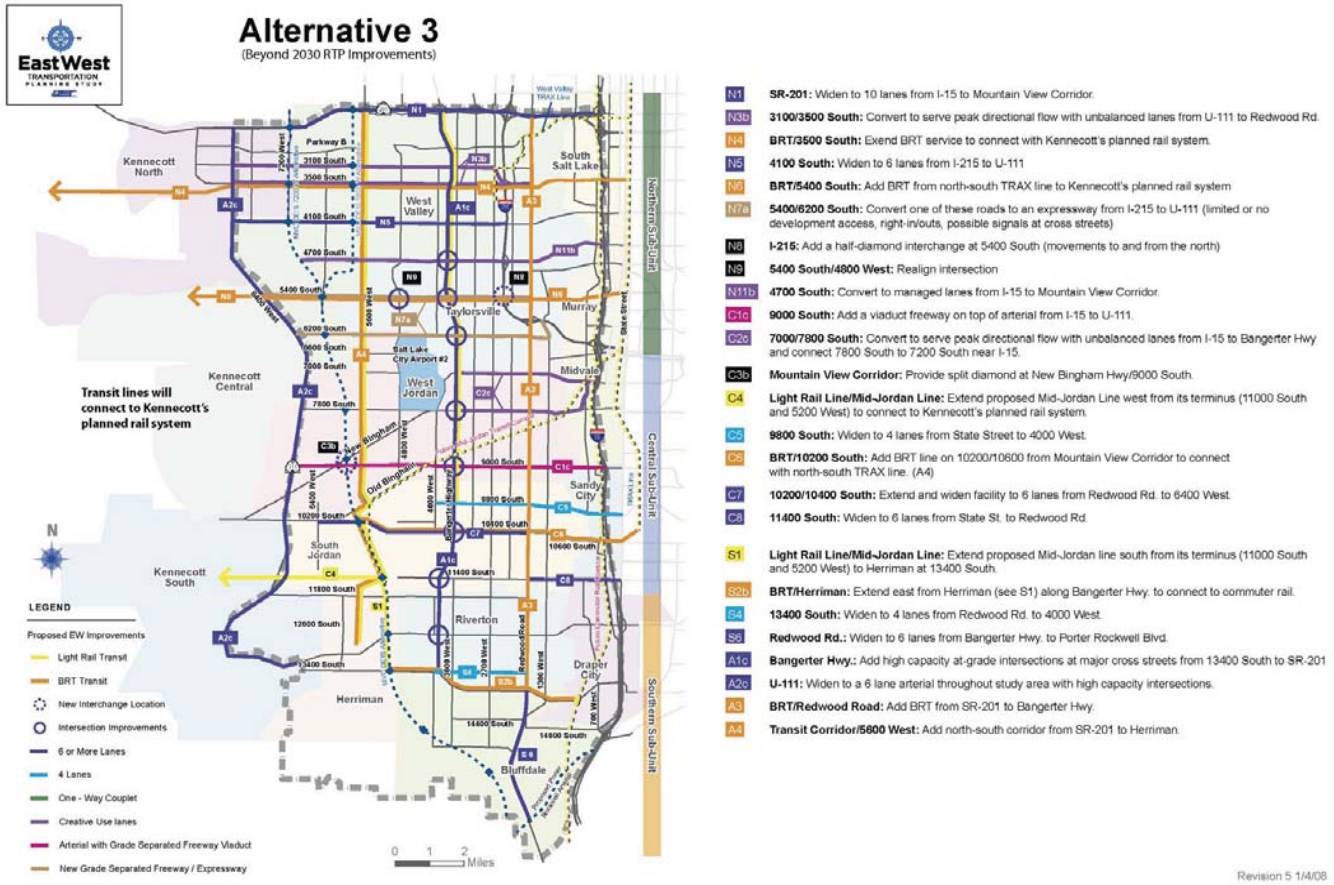
Figure 7-6. Alternative 3



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7.2.4.1 Working Group Session

During a working group session, the SWG members separated into three groups according to the geographical location of their jurisdiction within the subareas—North, Central, and South. Each group discussed the proposed facilities and improvements for each of the three alternatives within their geographical area. The results of these discussions are presented in Table 7-15.

Table 7-15. Stakeholder Working Group Comments on System Alternatives 1, 2, and 3

Major Points	Comments
North Subarea	
Transit	
(A4) BRT 5600 West	What type did MVC model?
BRT 54th S and 47th S	Must stop at State St. (Murray).
(A3) BRT Redwood Road	
(N10) 3500 S	Go straight west
(A4) Light Rail Line	
(N4)	Connection as a rail line to 54th S and SR 111
Roadway	
(A2b) Magna Bypass	From 4700 S to 201
(A2a) SR 111	Liked this idea, R/W preservation, (expressway?)
Bangerter	High capacity arterial with high-capacity intersections
I-215	Texas U-turns with frontage roads
3100 S and 4100 S	Directional arterials, combination?
6200 S	Expressway
(N8) I-215	Consider full diamond or SPUI. Tight urban diamond.
(N7b)	Feasibility—impacts and funding
(N7a)	Cities prefer 6200 South as an expressway, not 54th, Thought it was the best link to I-215 and Redwood Rd
(N11a) 47th S	Prefer widening as opposed to 41st S and improve from I-15 to Mtn View
General	
Bangerter	More access, example 3100 S or 4100 South, grade separated will improve east-west, impactful, Look for high-capacity intersections. No need for frontage system on Bangerter.
(N8) I-215	Consider full diamond or SPUI.
(N10) 4700 S	Liked 4700 S for transit, not as many residential impacts compared to other routes.
(N2)	All liked
(N3c) (N3a)	Will have major impacts, prefer 31st S. Directional may be possible. Don't like couplet idea on 35th S because of future BRT.
(N3b)	Does travel time differ in peak hours?
	Consider existing infrastructure
	Show major traffic generators on the alternatives maps.

Table 7-15. Stakeholder Working Group Comments on System Alternatives 1, 2, and 3

Major Points	Comments
Central Subarea	
Transit	
6200 S	New transit (BRT) Corridor on 6200 S
54th S or 62nd S	Freeway BRT on separate facilities
(C6) (C7)	Connect BRT to Light Rail
	There is an unlabeled yellow line shown along Bangerter.
Roadway	
54th or 62nd	Freeway BRT on separate facilities. All residential land use. Liked a freeway due to I-15 connection. Would be better to put a freeway at 54th S than 62nd S.
(N9)	Residential north of intersection. Wasn't the intersection already realigned?
(N7a) (N7b)	How would connection of 6200 S to I-215 work?
(C2a)	Two schools along 70th S west of the airport. Tunnel may cost a lot. Can we pay for it? Large impacts to residential. Is it worth it? Adjacent improvements may eliminate the need for 70th S extension.
(C2b)	Preferred this concept over (C2a). Do a reversible lane scenario.
(C2c)	Won't work to tie the two ends back together
(C2c) 78th S	Add I-15 exit at 7800 S to access the one way couplets
(C1*) 90th S	Liked the freeway alternative, just widening would not address the access issues. Maybe enough right-of-way.
(C5)	Support widening 98th S. Residents west of 40th W would complicate extension.
(C7)	Alignment of 104th S is not shown correctly on the map. (look into this.)
(C3b)	West Jordan is not opposed to this idea but does not have plans to accommodate it.
(C1c)	Tough to build 90th S elevated freeway beyond Bangerter due to residential.
(A1c) Bangerter	CFIs don't fix the Bangerter issues. Bangerter is a barrier.
General	
	Texas u-turns take up a lot of space.
	Take the build environment into account.
	Build 1000 West with four lanes between 70th S and 90th S.
	Address congestion between 700 West and I-15.
	Show consistent x-section on 78th S.
	No Kennecott connectivity to SR 111 shown on map
South Subarea	
Transit	
(S2a)	Already proposed in the LRP. Not a good idea for light rail on a freeway.
	New stop on Front Runner south of 146th S.
Kennecott backbone	Consider showing on the maps.
(A2c)	Should we consider BRT in this corridor?
(S2b)	BRT should go down 134th S to Redwood then to 146th S.
(S7)	Remove from 126th S and move to 114th S because of gap in transit from using 146th.

Table 7-15. Stakeholder Working Group Comments on System Alternatives 1, 2, and 3

Major Points	Comments
Roadway	
(S5)	Connection from SR 111 to 126th is unfeasible. The major east-west road to SR 111 is 118th S.
Various	126th S and 134th s should be local access roads west of MVC not freeways.
(A2b)	North of 126th S is freeway, south of 126th S is local access.
(A1b)	All agree to convert to freeway
146th S	Widen and extend 146th S to MVC.
Juniper Crest	Juniper Crest seven-lane arterial from 13400 to MVC (146th South).
Herriman (frontage)	Two-lane to five-lane that parallels MVC from 146th S to Porter-Rockwell.
General	
	Do not consider the MVC to Bang freeway to freeway connection in an alternative. (WFRC)
Travel Demand Management	Consider dense employment. Build populations centers to promote transit and eliminate the need for additional roadways.

In addition, each jurisdiction was given the opportunity to identify up to five elements of an alternative that they liked the most and five elements of an alternative that they liked the least. Each jurisdictions was given five red dot stickers and five green dot stickers to place on over-size plots of each alternative. Table 7-16 summarizes the results of the "Green Dot/Red Dot" (like/dislike) exercise.

Table 7-16. Stakeholder Working Group Like/Dislikes Exercise on Alternatives 1, 2, and 3

Agency	Like ("Green Dot")	Dislike ("Red Dot")
North Subarea		
Salt Lake County	▪ New Magna Bypass north of 4700 S ▪ SR 111 Expressway ▪ N4 ▪ N6	▪ A1b ▪ SR 111 Freeway ▪ N3a ▪ A2c—north of 4700 S ▪ SR 111 Freeway (again)
Kennecott	▪ SR 111 Expressway ▪ New Magna Bypass north of 4700 S ▪ N4 ▪ N6 ▪ N7a 6200 Expressway	▪ N10 ▪ SR 111 Freeway ▪ A2c—north of 4700 S
West Valley City	▪ N6 (5400 S) ▪ N2 ▪ N4 (BRT) ▪ A3 ▪ A1c (4100 S, 3100 S intersection)	▪ N5 (410 S) ▪ A1b ▪ N3c Couplet (local) ▪ N3a Couplet (regional) ▪ N3b

Table 7-16. Stakeholder Working Group Like/Dislikes Exercise on Alternatives 1, 2, and 3

Agency	Like ("Green Dot")	Dislike ("Red Dot")
Taylorsville	▪ N7a 6200 Expressway ▪ N2 ▪ N11a ▪ A3 ▪ A1c	▪ N7b (elevated) ▪ N5 ▪ Nc3
South Salt Lake	▪ N2 ▪ A1c ▪ N4 ▪ N4 (again)	No response
Murray	▪ N6 ▪ N6	No response
Kearns, Magna, Copperton	▪ New Magna Bypass north of 4700 S ▪ N4 ▪ N6 ▪ A4 ▪ N4 (again)	▪ Old Magna Bypass ▪ A2c north of 4100 S ▪ 3100 South ▪ N5
Central Subarea		
West Jordan	▪ 1—A2b ▪ 1—N6 ▪ 1—C2c (avoid coming together at 7200 S)	▪ 1-A1c
South Jordan	▪ 3—C8 ▪ 1—C6	▪ 1—C5 ▪ 1—C7 (coordinate plan with Daybreak / Kennecott Plan)
Sandy	▪ 1—C6 ▪ 1—C5 ▪ 1—A3 ▪ 1—C1c ▪ 1-C5	No response
Midvale	▪ 1—C2a ▪ 1—A1a ▪ 1—C6 ▪ 1—C2b ▪ 1—C1c	▪ 1—C2c
Unknown	▪ C8 ▪ 1—C1a ▪ 1—A1a	No response
Salt Lake County	▪ 1-N10 ▪ 1-A4 ▪ 1—N7a	▪ 1—N9 (already exists)

Table 7-16. Stakeholder Working Group Like/Dislikes Exercise on Alternatives 1, 2, and 3

Agency	Like ("Green Dot")	Dislike ("Red Dot")
South Subarea		
Bluffdale	No response	No response
Salt Lake County	▪ 1—A2b	▪ 1—A2b (south of 126th)
Herriman	▪ 1—A2b (North of 126th is a freeway, south that it turns to an arterial, b/c Herriman is make 126th a parkway. ▪ 1—A4 ▪ 1—C4 ▪ 1—S2a (realign to 144/146)	▪ 1—A2b (south of 126th)
UTA	▪ 1—S2a (realign to 144/146)	No response
WFRC	No response	No response
Unknown	▪ 1—A1a ▪ 1—S2a (realign to 144/146)	▪ 1—A2a ▪ 1—S7

7.2.5 Final Alternatives

Based on the results of the working group session, the improvements were consolidated into two new alternatives for further development and analysis. Named Alternative 4 and Alternative 5, they represent two distinct system based approaches to the east-west mobility problem. Alternative 4 tends to lean towards an arterial and transit concept; Alternative 5 is focused more on a freeway and arterial concept. Figure 7-7 and Figure 7-8 illustrate Alternatives 4 and 5, respectively. Elements common to both alternatives are highlighted in yellow in the text adjacent to the figures.

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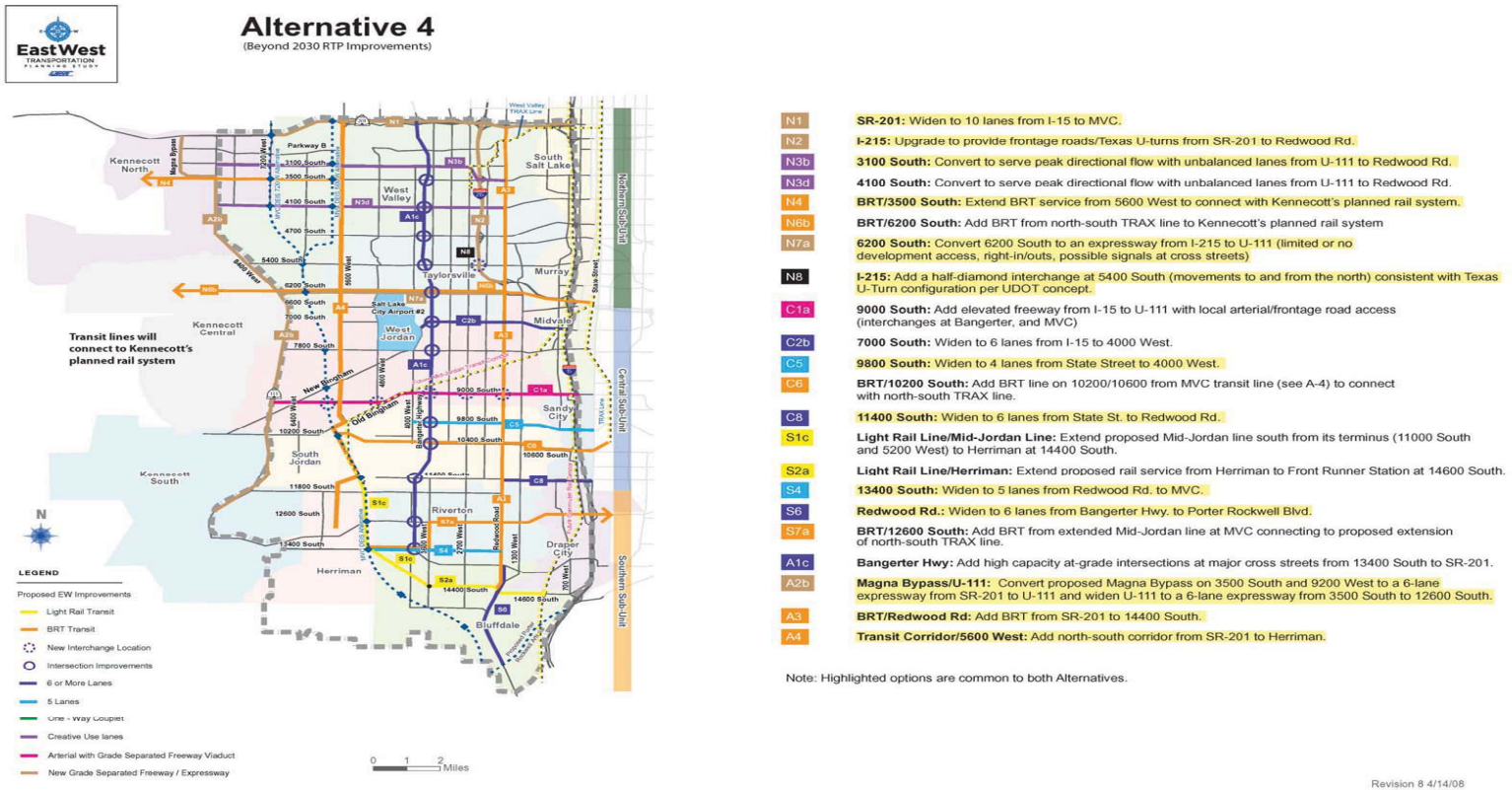
Figure 7-7. Alternative 4



N1	**SR-201:** Widen to 10 lanes from I-15 to MVC.
N2	**I-215:** Upgrade to provide frontage roads/Texas U-turns from SR-201 to Redwood Rd.
N3b	**3100 South:** Convert to serve peak directional flow with unbalanced lanes from U-111 to Redwood Rd.
N3d	**4100 South:** Convert to serve peak directional flow with unbalanced lanes from U-111 to Redwood Rd.
N4	**BRT/3500 South:** Extend BRT service from 5600 West to connect with Kennecott's planned rail system.
N6b	**BRT/6200 South:** Add BRT from north-south TRAX line to Kennecott's planned rail system
N7a	**6200 South:** Convert 6200 South to an expressway from I-215 to U-111 (limited or no development access, right-in/outs, possible signals at cross streets)
N8	**I-215:** Add a half-diamond interchange at 5400 South (movements to and from the north) consistent with Texas U-Turn configuration per UDOT concept.
C1a	**9000 South:** Add elevated freeway from I-15 to U-111 with local arterial/frontage road access (interchanges at Bangerter, and MVC)
C2b	**7000 South:** Widen to 6 lanes from I-15 to 4000 West.
C5	**9800 South:** Widen to 4 lanes from State Street to 4000 West.
C6	**BRT/10200 South:** Add BRT line on 10200/10600 from MVC transit line (see A-4) to connect with north-south TRAX line.
C8	**11400 South:** Widen to 6 lanes from State St. to Redwood Rd.
S1c	**Light Rail Line/Mid-Jordan Line:** Extend proposed Mid-Jordan line south from its terminus (11000 South and 5200 West) to Herriman at 14400 South.
S2a	**Light Rail Line/Herriman:** Extend proposed rail service from Herriman to Front Runner Station at 14600 South.
S4	**13400 South:** Widen to 5 lanes from Redwood Rd. to MVC.
S6	**Redwood Rd.:** Widen to 6 lanes from Bangerter Hwy. to Porter Rockwell Blvd.
S7a	**BRT/12600 South:** Add BRT from extended Mid-Jordan line at MVC connecting to proposed extension of north-south TRAX line.
A1c	**Bangerter Hwy:** Add high capacity at-grade intersections at major cross streets from 13400 South to SR-201.
A2b	**Magna Bypass/U-111:** Convert proposed Magna Bypass on 3500 South and 9200 West to a 6-lane expressway from SR-201 to U-111 and widen U-111 to a 6-lane expressway from 3500 South to 12600 South.
A3	**BRT/Redwood Rd:** Add BRT from SR-201 to 14400 South.
A4	**Transit Corridor/5600 West:** Add north-south corridor from SR-201 to Herriman.

Note: Highlighted options are common to both Alternatives.

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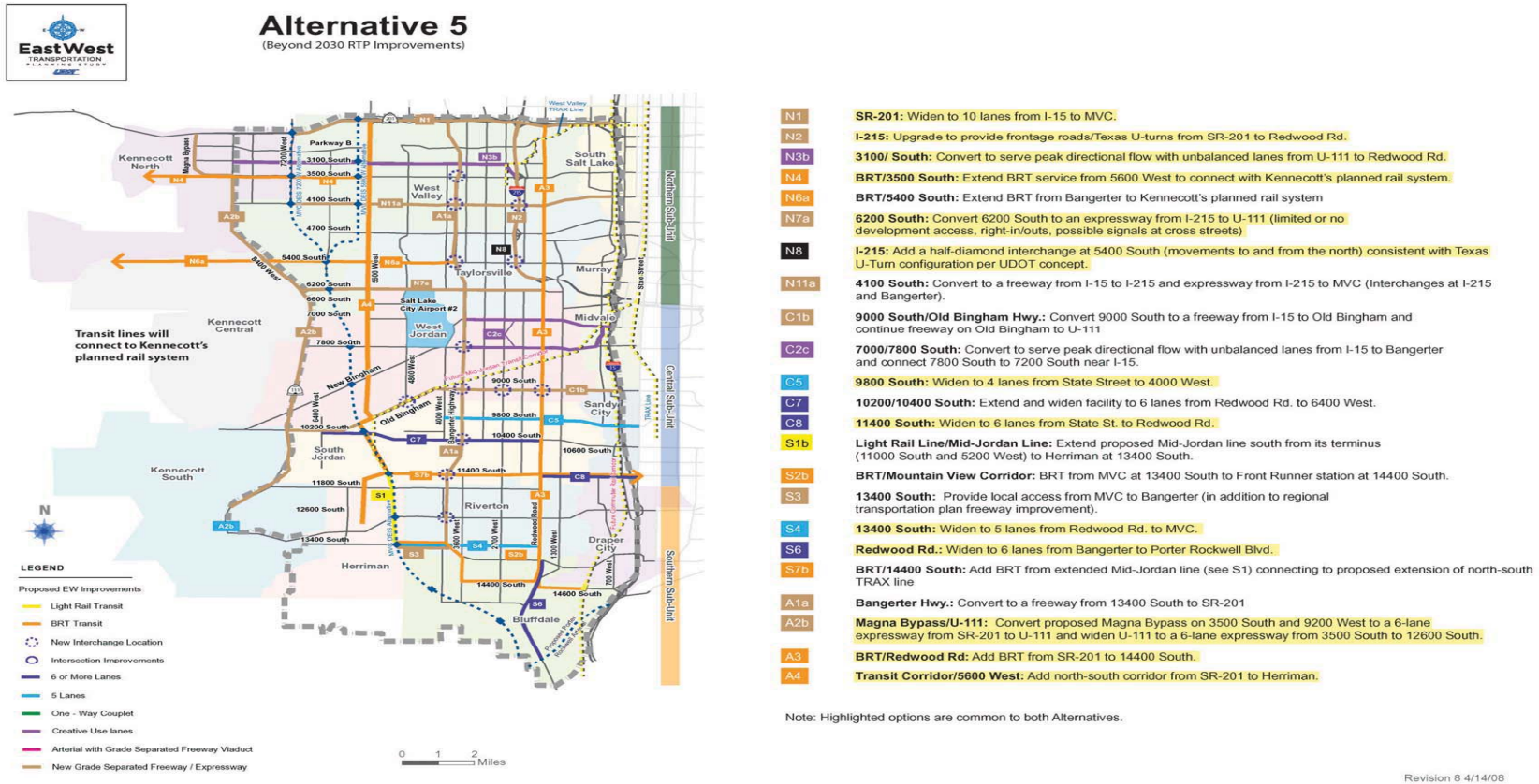
Figure 7-8. Alternative 5



N1	**SR-201:** Widen to 10 lanes from I-15 to MVC.
N2	**I-215:** Upgrade to provide frontage roads/Texas U-turns from SR-201 to Redwood Rd.
N3b	**3100/ South:** Convert to serve peak directional flow with unbalanced lanes from U-111 to Redwood Rd.
N4	**BRT/3500 South:** Extend BRT service from 5600 West to connect with Kennecott's planned rail system.
N6a	**BRT/5400 South:** Extend BRT from Bangerter to Kennecott's planned rail system
N7a	**6200 South:** Convert 6200 South to an expressway from I-215 to U-111 (limited or no development access, right-in/outs, possible signals at cross streets)
N8	**I-215:** Add a half-diamond interchange at 5400 South (movements to and from the north) consistent with Texas U-Turn configuration per UDOT concept.
N11a	**4100 South:** Convert to a freeway from I-15 to I-215 and expressway from I-215 to MVC (Interchanges at I-215 and Bangerter).
C1b	**9000 South/Old Bingham Hwy.:** Convert 9000 South to a freeway from I-15 to Old Bingham and continue freeway on Old Bingham to U-111
C2c	**7000/7800 South:** Convert to serve peak directional flow with unbalanced lanes from I-15 to Bangerter and connect 7800 South to 7200 South near I-15.
C5	**9800 South:** Widen to 4 lanes from State Street to 4000 West.
C7	**10200/10400 South:** Extend and widen facility to 6 lanes from Redwood Rd. to 6400 West.
C8	**11400 South:** Widen to 6 lanes from State St. to Redwood Rd.
S1b	**Light Rail Line/Mid-Jordan Line:** Extend proposed Mid-Jordan line south from its terminus (11000 South and 5200 West) to Herriman at 13400 South.
S2b	**BRT/Mountain View Corridor:** BRT from MVC at 13400 South to Front Runner station at 14400 South.
S3	**13400 South:** Provide local access from MVC to Bangerter (in addition to regional transportation plan freeway improvement).
S4	**13400 South:** Widen to 5 lanes from Redwood Rd. to MVC.
S6	**Redwood Rd.:** Widen to 6 lanes from Bangerter to Porter Rockwell Blvd.
S7b	**BRT/14400 South:** Add BRT from extended Mid-Jordan line (see S1) connecting to proposed extension of north-south TRAX line
A1a	**Bangerter Hwy.:** Convert to a freeway from 13400 South to SR-201
A2b	**Magna Bypass/U-111:** Convert proposed Magna Bypass on 3500 South and 9200 West to a 6-lane expressway from SR-201 to U-111 and widen U-111 to a 6-lane expressway from 3500 South to 12600 South.
A3	**BRT/Redwood Rd:** Add BRT from SR-201 to 14400 South.
A4	**Transit Corridor/5600 West:** Add north-south corridor from SR-201 to Herriman.

Note: Highlighted options are common to both Alternatives.

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